VOLUME CONTENTS

January

E. R. G. ECKERT	1	Fran Bošnjaković on the occasion of his 85th birthday
R. I. SOLOUKHIN and O. G. MARTYNENKO	3	Heat and mass transfer bibliography—Soviet works
V. YAKHOT, S. A. ORSZAG and A. YAKHOT	15	Heat transfer in turbulent fluids—I. Pipe flow
K. KITAMURA and T. INAGAKI	23	Turbulent heat and momentum transfer of combined forced and natural convection along a vertical flat plate—aiding flow
R. J. KRANE	43	A Second Law analysis of the optimum design and operation of thermal energy storage systems
H. HERWIG	59	An asymptotic approach to compressible boundary-layer flow
H. M. JOSHI and R. L. WEBB	69	Heat transfer and friction in the offset strip-fin heat exchanger
P. M. KOLESNIKOV	85	Generalized boundary conditions of the heat and mass transfer
U. PROJAHN and H. BEER	93	Thermogravitational and thermocapillary convection heat transfer in concentric and eccentric horizontal, cylindrical annuli filled with two immiscible fluids
A. G. KIRDYASHKIN	109	Thermocapillary periodic flows
J. BELLAN and K. HARSTAD	125	Analysis of the convective evaporation of nondilute clusters of drops
B.-X. WANG, D.-H. SHI and X.-F. PENG	137	An advance on the theory of forced turbulent-flow film boiling heat transfer for subcooled liquid flowing along a horizontal flat plate
J. T. HONG and C. L. TIEN	143	Analysis of thermal dispersion effect on vertical-plate natural convection in porous media

M. A. Hessami, G. de Vahl Davis, E. Leonardi and J. A. Reizes — 151 Mixed convection in vertical, cylindrical annuli

H. Tanaka, S. Maruyama and S. Hatano — 165 Combined forced and natural convection heat transfer for upward flow in a uniformly heated, vertical pipe

E. M. Sparrow, A. Garcia and W. Chuck — 175 Turbulent duct flow with streamwise nonuniform heating at the duct wall

L. Glicksman, M. Schuetz and M. Sinofsky — 187 Radiation heat transfer in foam insulation

Technical Notes

J. Gembarovič and V. Majerník — 199 Determination of thermal parameters of relaxation materials

K. Himasekhar — 201 Integral analysis of conjugate natural convection heat transfer from a long, vertical fin

M. Shoukri and A. Calka — 203 On the heat transfer characteristics of constrained air jets impinging on a flat surface

G. Grossman — 205 Analysis of interdiffusion in film absorption

J. J. Jou and J. S. Liaw — 208 Thermal convection in a porous medium subject to transient heating and rotation

Book Reviews

S. Kakaç — 213 Solar Thermal Storage, by H. P. Garg, S. C. Mullick and A. K. Bhargara

D. B. Spalding — 213 An Introduction to the Finite-element Method with Applications to Non-linear Problems, by R. E. White

213 Technical Guide to Thermal Processes, by J. Gosse

February

Y. Mori, I. Tanasawa and R. Echigo — i Professors Takashi Sato, Tokuro Mizushina and Kaneyasu Nishikawa on their 65th birthdays and retirement from the Honorary Editorial Advisory Board

K. Suzuki — ii Professor Takashi Sato

F. Ogino — iii Professor Tokuro Mizushina

Y. Fujita — iv Professor Kaneyasu Nishikawa

W. Chuck and E. M. Sparrow — 215 Evaporative mass transfer in turbulent forced convection duct flows

A. M. Sadegh, L. M. Jiji and S. Weinbaum	223	Boundary integral equation technique with application to freezing around a buried pipe
Ch. Charach and P. B. Kahn	233	Solidification in finite bodies with prescribed heat flux: bounds for the freezing time and removed energy
A. Hill and A. J. Willmott	241	A robust method for regenerative heat exchanger calculations
A. S. Lavine, R. Greif and J. A. C. Humphrey	251	A three-dimensional analysis of natural convection in a toroidal loop—the effect of Grashof number
K. Himasekhar and H. H. Bau	263	Thermal convection associated with hot/cold pipes buried in a semi-infinite, saturated, porous medium
J. Šimonek	275	The turbulent viscosity model and inherent laws of the near-wall turbulence
W. R. Paterson, R. A. Colledge, J. I. MacNab and J. A. Joy	279	Solid–gas mass transfer measurement by the swollen polymer method: proving of swelling agents
M. De Paz, M. Pilo and G. Sonnino	289	Non-linear, unsteady free convection in a vertical cylinder submitted to a horizontal thermal gradient: measurements in water between 6 and 21°C and a theoretical model of convection
B. Perrin et R. Javelas	297	Transferts couples de chaleur et de masse dans des matériaux consolides utilises en génie civil
K. J. Choi and S. C. Yao	311	Mechanisms of film boiling heat transfer of normally impacting spray
E. Zimmerman and S. Acharya	319	Free convection heat transfer in a partially divided vertical enclosure with conducting end walls
M. Hendrix, A. Leipertz, M. Fiebig and G. Simonsohn	333	Thermal diffusivity of transparent liquids by photon correlation spectroscopy—I. Results for toluene and methanol in an extended range of temperature and pressure
H. C. Ünal	341	An analytic study of boiling heat transfer from a fin
S. Kumar and N. D. Kazarinoff	351	Stability of a free convection density-extremum flow in a porous medium
M. Faghri and N. Rao	363	Numerical computation of flow and heat transfer in finned and unfinned tube banks

D. R. Webb and D. Panagoulias 373 An improved approach to condenser design using film models

C. T. Avedisian and J. Koplik 379 Leidenfrost boiling of methanol droplets on hot porous/ceramic surfaces

Technical Notes

S. Cobbinah, C. Laguérie and H. Gibert 395 Simultaneous heat and mass transfer between a fluidized bed of fine particles and immersed coarse porous particles

P. K. Nag and P. Mukherjee 401 Thermodynamic optimization of convective heat transfer through a duct with constant wall temperature

B. F. Armaly, T. S. Chen and N. Ramachandran 405 Correlations for laminar mixed convection on vertical, inclined and horizontal flat plates with uniform surface heat flux

C. K. Aidun and S. P. Lin 408 Large amplitude modulation of heat transfer from a circular cylinder

Letter to the Editors 413

March

E. Hahne 415 Professor Dr.-Ing. Dr.e.h. Ulrich Grigull on his 75th birthday

Y. Mori and R. Echigo 417 Heat transfer bibliography—Japanese works

E. M. Sparrow and A. A. Yanez Moreno 427 Effect of yaw on forced convection heat transfer from a circular cylinder

A. Soufiani and J. Taine 437 Application of statistical narrow-band model to coupled radiation and convection at high temperature

G. P. Celata, M. Cumo, G. E. Farello and G. Focardi 449 Direct contact condensation of superheated steam on water

G. P. Celata, M. Cumo, G. E. Farello and G. Focardi 459 A theoretical model of direct contact condensation on a horizontal surface

N. Zhang, B. X. Wang and Y. Xu 469 Thermal instability of evaporating drops on a flat plate and its effects on evaporation rate

C. Vives and C. Perry 479 Effects of magnetically damped convection during the controlled solidification of metals and alloys

S. Hatamiya and H. Tanaka 497 Dropwise condensation of steam at low pressures

J. P. du Plessis and D. G. Kröger 509 Heat transfer correlation for thermally developing laminar flow in a smooth tube with a twisted-tape insert

V. A. Sosinovich, B. A. Kolovandin, V. A. Tsyganov and C. Meola — 517 A statistical turbulent reacting flow model

M. L. Mittal, H. R. Nataraja and V. G. Naidu — 527 Fluid flow and heat transfer in the duct of an MHD power generator

P. Vasseur, M. G. Satish and L. Robillard — 537 Natural convection in a thin, inclined, porous layer exposed to a constant heat flux

M. A. Dudeck — 551 Evolution thermique d'une sonde électrostatique dans un gaz raréfié et partiellement ionisé

K. Kataoka, M. Suguro, H. Degawa, K. Maruo and I. Mihata — 559 The effect of surface renewal due to large-scale eddies on jet impingement heat transfer

S. H. Han and S. G. Bankoff — 569 Thermal interactions of a molten tin drop with water triggered by a low-pressure shock

S. G. Bankoff and S. C. Lee — 581 Flooding and hysteresis effects in nearly-horizontal countercurrent stratified steam–water flow

I. Opaliński and A. Wolny — 589 Discontinuity of particle contact with the surface and heat transfer in fluidized beds

Technical Notes

E. M. Sparrow and C. K. Carlson — 601 Experimental investigation of heat flux uniformity at thin, electrically heated metallic foils

V. R. Voller — 604 A heat balance integral method based on an enthalpy formulation

S. Ramachandran, C. Kleinstreuer and E. R. Altwicker — 607 Mass transfer to an accelerating multidrop system

P. A. A. Laura, V. H. Cortínez and R. Carnicer — 610 Steady-state temperature distribution in a doubly connected, orthotropic region with heat generation

April

A. Chaboki and E. M. Sparrow — 613 Melting in a vertical tube rotating about a vertical, colinear axis

J.-Y. Liu, S.-D. Shih and W. J. Minkowycz — 623 Conjugate natural convection about a vertical cylindrical fin with lateral mass flux in a saturated porous medium

P. K. Das, G. S. Bhat and V. H. Arakeri — 631 Investigations on the propagation of free surface boiling in a vertical superheated liquid column

C. Nouar, R. Devienne et M. Lebouche	639	Convection thermique pour l'écoulement de Couette avec debit axial; cas d'un fluide pseudo-plastique
C. Saidi, F. Legay-Desesquelles and B. Prunet-Foch	649	Laminar flow past a sinusoidal cavity
S. M. Correa	663	Fluid flow and heat transfer in incandescent lamps
K. A. Antonopoulos	673	Pressure drop during laminar oblique flow through in-line tube assemblies
H. I. Andersson	683	Diffusion from a vertical wall into an accelerating falling liquid film
A. K. Kulkarni, H. R. Jacobs and J. J. Hwang	691	Similarity solution for natural convection flow over an isothermal vertical wall immersed in thermally stratified medium
P. Payvar	699	Mass transfer-controlled bubble growth during rapid decompression of a liquid
L. S. Yao	707	Is a fully-developed and non-isothermal flow possible in a vertical pipe?
P. Vasseur and L. Robillard	717	The Brinkman model for boundary layer regime in a rectangular cavity with uniform heat flux from the side
M. Sen and K. E. Torrance	729	Natural convection in a thin horizontal porous annulus
S. L. Moya, E. Ramos and M. Sen	741	Numerical study of natural convection in a tilted rectangular porous material
D. A. Goussis	757	Effects of viscous dissipation on the stability of a liquid film flowing down a heated inclined plane
A. H. George	763	A transducer for the measurement of instantaneous local heat flux to surfaces immersed in high-temperature fluidized beds
Y. C. Fey and M. A. Boles	771	An analytical study of the effect of convection heat transfer on the sublimation of a frozen semi-infinite porous medium
W. P. Webster and S. Yavuzkurt	781	Measurements of mass transfer coefficient and effectiveness in the recovery region of a film-cooled surface

P. L. KIRILLOV, V. M. KASHCHEYEV, YU. V. MURANOV and YU. S. YURIEV — 791 — A two-dimensional mathematical model of annular-dispersed and dispersed flows—I

P. L. KIRILLOV, V. M. KASHCHEYEV, YU. V. MURANOV and YU. S. YURIEV — 801 — A two-dimensional mathematical model of annular-dispersed and dispersed flows—II

Technical Notes

E. M. SPARROW, S. S. KANG and L. M. HOSSFELD — 807 — Heat or mass transfer adjacent to the free end of a rotating cylinder

L. S. YAO — 810 — Linear stability analysis for opposing mixed convection in a vertical pipe

L. M. SIMEZA and M. M. YOVANOVICH — 812 — Shape factors for hollow prismatic cylinders bounded by isothermal inner circles and outer regular polygons

Book Reviews

D. B. SPALDING — 817 — Directory of Microcomputer Software for Mechanical Engineering Design, by O'CONNELL, SHEVIAK, BROWNE and JOHNSON

N. C. MARKATOS — 817 — Numerical Methods for Engineers with Personal Computer Applications, by S. C. CHAPRA and R. P. CANALE

May

R. I. SOLOUKHIN and O. G. MARTYNENKO — 819 — Heat and mass transfer bibliography—Soviet works

QIAN RENZHANG, HUANG WENDI, XU YUNSHENG and LIU DECHANG — 827 — Experimental research of radiative heat transfer in fluidized beds

M. CIAMPI, S. FAGGIANI, W. GRASSI, G. TUONI and F. P. INCROPERA — 833 — Mixed convection heat transfer in horizontal, concentric annuli for transitional flow conditions

C. Y. SHIEH and W.-J. YANG — 843 — Transient thermocapillary flow in rectangular tanks with phase change

A. K. SEN — 855 — Natural convection in a shallow porous cavity—the Brinkman model

G. P. FLACH and M. N. ÖZIŞIK — 869 — Periodic B-spline basis for quasi-steady periodic inverse heat conduction

L. J. HUANG and P. S. AYYASWAMY — 881 — Heat and mass transfer associated with a spray drop experiencing condensation: a fully transient analysis

T. IGARASHI — 893 — Fluid flow and heat transfer around rectangular cylinders (the case of a width/height ratio of a section of $0.33 \sim 1.5$)

J. L. Bassani, M. W. Nansteel and M. November	903	Adiabatic–isothermal mixed boundary conditions in heat transfer
J. Gaviglio	911	Reynolds analogies and experimental study of heat transfer in the supersonic boundary layer
J. Y. Yoo, P. Park, C. K. Choi and S. T. Ro	927	An analysis on the thermal instability of forced convection flow over isothermal horizontal flat plate
J. Kubie	937	Steady-state conduction in stagnant beds of solid particles
P. W. Carpenter	949	A multi-zonal integral method for problems involving unsteady one-dimensional heat conduction with change of phase
R. Siegel	959	Separation of variables solution for non-linear radiative cooling
M. Kaviany and M. Mittal	967	Natural convection heat transfer from a vertical plate to high permeability porous media: an experiment and an approximate solution
H. Ross, R. Radermacher, M. di Marzo and D. Didion	979	Horizontal flow boiling of pure and mixed refrigerants
R. N. Pande and F. Gori	993	Effective media formation and conduction through unsaturated granular materials
J. Verhás	1001	Irreversible thermodynamics for the rheological properties of colloids
T. Nishimura, A. Tarumoto and Y. Kawamura	1007	Flow and mass transfer characteristics in wavy channels for oscillatory flow
M. Ogawa	1017	Mass transfer of mixed gas flow crossing a high temperature graphite cylinder with chemical reactions and in-pore diffusion
		June
J. R. Hull and J. M. Mehta	1027	Physical model of gradient zone erosion in thermohaline systems
A. A. Pesaran and A. F. Mills	1037	Moisture transport in silica gel packed beds—I. Theoretical study

A. A. Pesaran and A. F. Mills	1051	Moisture transport in silica gel packed beds—II. Experimental study
F. B. Cheung	1061	Free convection heat and mass transfer during pool penetration into a melting miscible substrate
C. I. Staicu	1077	Variational treatment of quasi-stationary thermal conduction through flat plates
J. Bellan and K. Harstad	1083	The details of the convective evaporation of dense and dilute clusters of drops
W. Mojtahedi	1095	Effect of an immersed tube-bank in a gas fluidized bed
W. W. Pulkrabek and W. E. Ibele	1103	The effect of temperature on the permeability of a porous material
H.-T. Lin and L.-K. Lin	1111	Similarity solutions for laminar forced convection heat transfer from wedges to fluids of any Prandtl number
G. Wilks and R. Hunt	1119	Vertical mixed convection flow about a horizontal line source of heating or cooling
I. Y. Chen and G. Kocamustafaogullari	1133	Condensation heat transfer studies for stratified, co-current two-phase flow in horizontal tubes
H. Amir, G. Le Palec et M. Daguenet	1149	Séchage superficiel d'un matériau poreux humide par convection forcée d'air chaud: couplage entre les équations de transfert dans le matériau et celles de la couche limite
J. E. Doorly and M. L. G. Oldfield	1159	The theory of advanced multi-layer thin film heat transfer gauges
K. Mishima and H. Nishihara	1169	Effect of channel geometry on critical heat flux for low pressure water
W. S. Kim, J. K. Park and H. N. Chang	1183	Mass transfer in a three-dimensional net-type turbulence promoter
T. Ota and H. Nishiyama	1193	A correlation of maximum turbulent heat transfer coefficient in reattachment flow region
Y. Kurosaki and I. Satoh	1201	Laminar heat transfer in an asymmetrically heated rectangular duct

M. Prud'homme, L. Robillard and P. Vasseur — 1209 — A study of laminar natural convection in a non-uniformly heated annular fluid layer

Technical Notes

Gh. Juncu and R. Mihail — 1223 — The effect of diffusivities ratio on conjugate mass transfer from a droplet

H. G. Sharma and K. R. Singh — 1227 — Heat transfer in the laminar flow of a non-Newtonian fluid in a porous annulus by the method of quasilinearization

R. M. Fand, T. Zheng and P. Cheng — 1231 — The general characteristics of boiling heat transfer from a surface embedded in a porous medium

July

E. M. Sparrow, S. S. Kang and W. Chuck — 1237 — Relation between the points of flow reattachment and maximum heat transfer for regions of flow separation

E. M. Sparrow and T. A. Myrum — 1247 — Experiments on natural convection in complex enclosed spaces containing either two fluids or a single fluid

N. M. Tsirelman and A. V. Zhiber — 1259 — Solution of the unsteady-state heat conduction problem for a two-dimensional region with a moving boundary

I. Neudachin, S. Givotov and V. Poddubnyi — 1269 — Kinetic boundary layer treatment in the problem of a rarefied gas flow through a perforated wall by the method of moments

A. Randriamampianina, P. Bontoux et B. Roux — 1275 — Ecoulements induits par la force gravifique dans une cavité cylindrique en rotation

J. I. Frankel, B. Vick and M. N. Özisik — 1293 — General formulation and analysis of hyperbolic heat conduction in composite media

J. R. Maughan and F. P. Incropera — 1307 — Experiments on mixed convection heat transfer for airflow in a horizontal and inclined channel

Y. Zvirin — 1319 — Instabilities in a double-diffusive thermosyphon

M. Wang, D. R. Kassoy and P. D. Weidman — 1331 — Onset of convection in a vertical slab of saturated porous media between two impermeable conducting blocks

D. A. de Vries — 1343 — The theory of heat and moisture transfer in porous media revisited

R. M. Fand and R. T. Phan	1351	Combined forced and natural convection heat transfer from a horizontal cylinder embedded in a porous medium
J. Y. San, W. M. Worek and Z. Lavan	1359	Entropy generation in combined heat and mass transfer
D. W. Condiff	1371	Anisotropic scattering in three-dimensional differential approximation for radiation heat transfer
M. Al-Arabi, M. A. I. El-Shaarawi and M. Khamis	1381	Natural convection in uniformly heated vertical annuli
K. Vafai and R. Thiyagaraja	1391	Analysis of flow and heat transfer at the interface region of a porous medium
M. Kaviany and M. Mittal	1407	Funicular state in drying of a porous slab
D. A. Booth, P. A. Glover and N. Sheriff	1419	Natural convection measurements in a mercury-filled rectangular plenum
Z. Bilicki, J. Kestin and J. Mikielewicz	1427	Two-phase downflow in a vertical pipe and the phenomenon of choking: homogeneous diffusion model
C. K. Law, T. Y. Xiong and C. H. Wang	1435	Alcohol droplet vaporization in humid air
J. H. Masliyah	1445	Heat transfer from a porous composite sphere immersed in a moving stream
N. Padmanabhan	1453	Entry flow in heated curved pipes
H. C. Ünal	1465	Temperature distributions in fins with uniform and non-uniform heat generation and non-uniform heat transfer coefficient
R. Mosdorf and M. Poniewski	1479	Statistic analysis of the boiling curve for a droplet
S. Motakef	1487	Effect of natural convection and thermal transparency of liquid encapsulant on thermal stresses during LEC growth of GaAs
T. K. Nguyen and C. T. Avedisian	1497	Numerical solution for film evaporation of a spherical liquid droplet on an isothermal and adiabatic surface

G. Le Palec and M. Daguenet 1511 Laminar three-dimensional mixed convection about a rotating sphere in a stream

J. Arnaldos and J. Casal 1525 Study and modelling of mass transfer in magnetically stabilized fluidized beds

M.-C. Chyu 1531 Evaporation of macrolayer in nucleate boiling near burnout

Technical Notes

A. Jordan, A. Szybiak, M. Benmouna and A. Barka 1539 Temperature distribution in a cylindrical conductor with skin effect

S. Nag and M. Raja Rao 1541 Forced convection heat transfer in smooth tubes roughened by helically coiled ribbons

B. J. Huang 1544 A combined convection correlation for vertical downward cooling flow in a natural circulation loop

C. Beckermann and R. Viskanta 1547 Forced convection boundary layer flow and heat transfer along a flat plate embedded in a porous medium

K. J. Negus and M. M. Yovanovich 1552 Simple separability for steady heat conduction with spatially-varying thermal conductivity

S. L. Lee, T. S. Chen and B. F. Armaly 1556 Free stream effects on the wave instability of buoyant flows along an isothermal vertical flat plate

Letters to the Editors

S. A. Gökoğlu 1559 Discussion of Mills *et al.* on "The effect of wall suction and thermophoresis on aerosol particle deposition from a laminar boundary layer on a flat plate"

A. F. Mills 1560 Reply to 'Discussion of Mills *et al.* on "The effect of wall suction and thermophoresis on aerosol particle deposition from a laminar boundary layer"'

P. D. Weidman 1561 A note on "Mass and heat transfer by natural convection in a vertical slot filled with porous medium"

Book Review

C. J. Lawn 1563 Flowfield Modeling and Diagnostics, by A. K. Gupta and D. G. Lilley

August

R. I. Soloukhin, O. G. Martynenko and R. Pohorecki 1565 In Memoriam—Professor J. W. Ciborowski (1918–1986)

G. T. Geiger and E. M. Sparrow 1567 Effect of rotation on melting in a horizontal tube rotating about a vertical axis

M. K. Bologa, I. K. Savin and A. B. Didkovsky	1577	Electric-field-induced enhancement of vapour condensation heat transfer in the presence of a non-condensable gas
Y. S. Sim and W.-J. Yang	1587	New performance-evaluation analyses on heat transfer surfaces by single-blow technique
J. J. Guilleminot, F. Meunier and J. Pakleza	1595	Heat and mass transfer in a non-isothermal fixed bed solid adsorbent reactor: a uniform pressure–non-uniform temperature case
E. Blūms, A. Yu. Chukhrov and A. Rimša	1607	Some problems of mass transfer in magnetic colloids near a filtrating element in high-gradient magnetic separation
D. B. Ingham and I. Pop	1615	Free convection from a semi-infinite vertical surface bounded by a horizontal wall in a porous medium
D. E. Glass, M. N. Özişik and B. Vick	1623	Non-Fourier effects on transient temperature resulting from periodic on–off heat flux
D. R. Otis and J. Roessler	1633	Development of stratification in a cylindrical enclosure
H. Q. Yang, K. T. Yang and J. R. Lloyd	1637	Laminar natural-convection flow transitions in tilted three-dimensional longitudinal rectangular enclosures
K.-C. Chiu and F. Rosenberger	1645	Mixed convection between horizontal plates—I. Entrance effects
K.-C. Chiu, J. Ouazzani and F. Rosenberger	1655	Mixed convection between horizontal plates—II. Fully developed flow
P. Lybaert	1663	Wall–particles heat transfer in rotating heat exchangers
Y. Ben-Haim and E. Elias	1673	Indirect measurement of surface temperature and heat flux: optimal design using convexity analysis
K. Daryabeigi, R. L. Ash and L. A. Dillon-Townes	1685	Influence of ventilated shrouds on the convective heat transfer to a circular cylinder
D. J. Gunn and M. N. Sabri	1693	A distributed model for liquid-phase heat transfer in fixed beds
A. A. Alem Rajabi and R. H. S. Winterton	1703	Heat transfer across vapour film without ebullition

V. R. VOLLER and C. PRAKASH 1709 A fixed grid numerical modelling methodology for convection–diffusion mushy region phase-change problems

H.-T. LIN and J.-J. CHEN 1721 Mixed convection wall plumes

C. J. COLEMAN 1727 A boundary integral approach to the solidification of dilute alloys

S. A. IDEM, C. JUNG, G. J. GONZALEZ and V. W. GOLDSCHMIDT 1733 Performance of air-to-water copper finned-tube heat exchangers at moderately low air-side Reynolds numbers, including effects of baffles

S. L. LEE, T. S. CHEN and B. F. ARMALY 1743 Wave instability characteristics for the entire regime of mixed convection flow along vertical flat plates

Technical Notes

W. S. KIM and M. N. ÖZIŞIK 1753 Transient laminar forced convection in ducts with suddenly applied uniform wall heat flux

T. NISHIMURA, M. SHIRAISHI and Y. KAWAMURA 1756 Natural convection heat transfer in enclosures with an off-center partition

S.-S. HSIEH 1758 A generalized correlation for thermal design data of heat-pipe heat exchangers

R. SIEGEL 1762 Radiative cooling of a solidifying droplet layer including absorption and scattering

Y. JOSHI 1766 On the termination of one-dimensional transport in transient buoyancy induced flow adjacent to a vertical surface

T. GOVINDARAJULU and G. MALARVIZHI 1769 A note on the solution of the free convection boundary layer flow in a saturated porous medium

September

L. TADRIST, I. SHEHU DISO, R. SANTINI and J. PANTALONI 1773 Vaporization of a liquid by direct contact in another immiscible liquid. Part I: vaporization of a single droplet. Part II: vaporization of rising multidroplets

J. F. SINI and I. DEKEYSER 1787 Numerical prediction of turbulent plane jets and forced plumes by use of the k–ϵ model of turbulence

G. FLAMANT and T. MENIGAULT 1803 Combined wall-to-fluidized bed heat transfer. Bubbles and emulsion contributions at high temperature

M. SOUHAR 1813 Etude expérimentale de la turbulence pres de la paroi en écoulement à bulles

G. P. MERKER and ST. MEY 1825 Free convection in a shallow cavity with variable properties—1. Newtonian fluid

St. Mey and G. P. Merker	1833	Free convection in a shallow cavity with variable properties--2. Porous media
H. Gökçe and C. Özgen	1839	A hydrodynamic model developed for the condensate flowing over a sinusoidal fluted tube
M. Poniewski	1847	Dissipative model of film boiling crisis
M. Sabri, C. Basilico et M. Martin	1859	Etude des structures convectives et du transfert thermique autour d'un cylindre en deuxième nappe dans une configuration en quinconce, en écoulement d'air chargé de gouttelettes d'eau
B. Palánez	1871	Solution of the penetrating evaporation front model for finite porous medium using orthogonal collocation method
A. K. Bińk	1879	Mass transfer into turbulent liquid jets
Yu. D. Morozov	1885	A correlation for the limiting dryout steam quality in forced convection in uniformly heated vertical round tubes
K. Makino and I. Michiyoshi	1895	Discussions of transient heat transfer to a water droplet on heated surfaces under atmospheric pressure
M. Patel, M. Cross, N. C. Markatos and A. C. H. Mace	1907	An evaluation of eleven discretization schemes for predicting elliptic flow and heat transfer in supersonic jets
I. Kataoka and M. Ishii	1927	Drift flux model for large diameter pipe and new correlation for pool void fraction
G. Guglielmini, E. Nannei and G. Tanda	1941	Natural convection and radiation heat transfer from staggered vertical fins
S. K. Aggarwal	1949	Modeling of a dilute vaporizing multicomponent fuel spray
J. Sucec	1963	Unsteady conjugated forced convective heat transfer in a duct with convection from the ambient
Y. Katto, S. Yokoya, S. Miake and M. Taniguchi	1971	Critical heat flux on a uniformly heated cylinder in a cross flow of saturated liquid over a very wide range of vapor-to-liquid density ratio

October

A. A. YANEZ MORENO and E. M. SPARROW	1979	Heat transfer, pressure drop, and fluid flow patterns in yawed tube banks
H. M. BADR	1997	Heat transfer in transient buoyancy driven flow adjacent to a horizontal rod
V. K. DHIR and J. H. SCOTT	2013	On the superposition of injection induced swirl during enhancement of subcooled critical heat flux
R. A. ANTONIA and L. W. B. BROWNE	2023	Conventional and conditional Prandtl number in a turbulent plane wake
N. SCHADLER and W. KAST	2031	A complete model of the drying curve for porous bodies—experimental and theoretical studies
S. NISHIO	2045	Prediction technique for minimum-heat-flux(MHF)-point condition of saturated pool boiling
P. N. PAPANICOLAOU and E. J. LIST	2059	Statistical and spectral properties of tracer concentration in round buoyant jets
R. M. COTTA, M. D. MIKHAILOV and M. N. ÖZIŞIK	2073	Transient conjugated forced convection in ducts with periodically varying inlet temperature
I. A. MUDAWWAR, T. A. INCROPERA and F. P. INCROPERA	2083	Boiling heat transfer and critical heat flux in liquid films falling on vertically-mounted heat sources
M. SEN, P. VASSEUR and L. ROBILLARD	2097	Multiple steady states for unicellular natural convection in an inclined porous layer
V. S. ARPACI	2115	Radiative entropy production—lost heat into entropy
J. L. FERNÁNDEZ and R. POULTER	2125	Radial mass flow in electrohydrodynamically-enhanced forced heat transfer in tubes
H. N. CHANG, H. W. RYU, D. H. PARK, Y. S. PARK and J. K. PARK	2137	Effect of external laminar channel flow on mass transfer in a cavity
D. M. DEFFENBAUGH and S. T. GREEN	2151	Transient heat transfer and bubble dynamics in a pressurized fluidized bed
W. D. BENNON and F. P. INCROPERA	2161	A continuum model for momentum, heat and species transport in binary solid–liquid phase change systems—I. Model formulation

W. D. Bennon and F. P. Incropera 2171 A continuum model for momentum, heat and species transport in binary solid–liquid phase change systems—II. Application to solidification in a rectangular cavity

Technical Notes

F. C. Lai and F. A. Kulacki 2189 Non-Darcy convection from horizontal impermeable surfaces in saturated porous media

L. Hes and H. Staňková 2193 Convection heat transfer to the continuous cylinder of finite thermal capacity moving inside the heating pipe

N. Ramachandran, B. F. Armaly and T. S. Chen 2196 Correlations for laminar mixed convection in boundary layers adjacent to inclined, continuous moving sheets

A. Degiovanni 2199 Correction de longueur d'impulsion pour la mesure de la diffusivité thermique par méthode flash

S. B. Thomason 2201 Experimental evaluation of parameters affecting turbulent flow freeze blockage of a tube

G. M. Oreper and J. Szekely 2205 The transient solidification of weldpools

Letter to the Editors

P. M. Li and S. Lin 2211 Radiation configuration factor between disk and segment

Announcements

2213 Fourth International Symposium on Applications of Laser Anemometry to Fluid Mechanics, Lisbon, Portugal, 11–14 July 1988

2213 First World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics, Dubrovnik, Yugoslavia, 4–9 September 1988

November

Bu-Xuan Wang, Zeng-Yuan Guo and Ze-Pei Ren 2215 Review of 1983–1986 Chinese literature on heat transfer

A. Degiovanni et C. Moyne 2225 Conductivité thermique de matériaux poreux humides: évaluation théorique et possibilité de mesure

J. T. Rogers, M. Salcudean, Z. Abdullah, D. McLeod and D. Poirier 2247 The onset of significant void in up-flow boiling of water at low pressure and velocities

Y. Katto and S. Yokoya 2261 Critical heat flux of forced convective boiling in uniformly heated vertical tubes with special reference to very large length-to-diameter ratios

L. W. Swanson and I. Catton 2271 Surface renewal theory for turbulent mixed convection in vertical ducts

R. F. Richards, M. F. Young and J. C. Haiad 2281 Turbulent forced convection heat transfer from a bottom heated open surface cavity

Z. Zhang and A. Bejan 2289 The horizontal spreading of thermal and chemical deposits in a porous medium

P. C. Chau 2305 Local liquid–solid mass transfer measurement in a trickle film flow model using an electrochemical technique

D. S. Lin and M. W. Nansteel 2319 Natural convection heat transfer in a square enclosure containing water near its density maximum

T. X. Phuoc and P. Durbetaki 2331 Heat and mass transfer analysis of a coal particle undergoing pyrolysis

O. V. Trevisan and A. Bejan 2341 Mass and heat transfer by high Rayleigh number convection in a porous medium heated from below

A. H. Dilawari and J. Szekely 2357 Fluid flow and heat transfer in plasma reactors—I. Calculation of velocities, temperature profiles and mixing

P. Cheng and H. Zhu 2373 Effects of radial thermal dispersion on fully-developed forced convection in cylindrical packed tubes

X. Xu and V. P. Carey 2385 Heat transfer and two-phase flow during convective boiling in a partially-heated cross-ribbed channel

P. Basu and P. K. Nag 2399 An investigation into heat transfer in circulating fluidized beds

R. M. C. So, M. H. Yu, M. V. Otugen and J. Y. Zhu 2411 Rotation effects on inhomogeneous mixing in axisymmetric sudden-expansion flows

S. Akagi and H. Kato 2423 Numerical analysis of mixed convection heat transfer of a high viscosity fluid in a rectangular tank with rolling motion

M. November and M. W. Nansteel 2433 Natural convection in rectangular enclosures heated from below and cooled along one side

Technical Notes

S. A. Raj 2441 A complete analytical solution to laminar heat transfer in axisymmetric stagnation point flow

J. Dey 2444 A note on the series solutions of momentum and energy equations for heat transfer from a semi-infinite plate

A. Jordan, A. Barka and M. Benmouna 2446 Transient state temperature distribution in a cylindrical conductor with skin effect

December

E. R. G. Eckert, R. J. Goldstein, E. Pfender, W. E. Ibele, S. V. Patankar, J. W. Ramsey, T. W. Simon, N. A. Decker, T. H. Kuehn, H. O. Lee and S. L. Girshick	2449	Heat transfer—a review of 1986 literature
R. I. Soloukhin and O. G. Martynenko	2525	Heat and mass transfer bibliography—Soviet works
J. Bandrowski and J. Ziołko	2533	Heat and mass transfer bibliography—Polish works (1985–1986)
R. Ruiz and E. M. Sparrow	2539	Natural convection in V-shaped and L-shaped corners
N. G. Rassokhin and L. P. Kabanov	2549	Heat transfer in the post dryout region and on wetting heated surfaces
D. G. Neilson and F. P. Incropera	2559	Double-diffusive flow and heat transfer for a cylindrical source submerged in a salt-stratified solution
M. B. Peirotti, M. D. Giavedoni and J. A. Deiber	2571	Natural convective heat transfer in a rectangular porous cavity with variable fluid properties—validity of the Boussinesq approximation
A. A. Mostafa and H. C. Mongia	2583	On the modeling of turbulent evaporating sprays: Eulerian versus Lagrangian approach
K. Pruess, C. Calore, R. Celati and Y. S. Wu	2595	An analytical solution for heat transfer at a boiling front moving through a porous medium
J. L. Fernández and R. Poulter	2603	Heat transfer enhancement by means of flag-type insert in tubes
S. C. Gupta	2611	Analytical and numerical solutions of radially symmetric inward solidification problems in spherical geometry
N. S. Dixit, N. Venkatramani and V. K. Rohatgi	2617	Effect of seed droplet evaporation on electrical conductivity and temperature of combustion plasmas
D. S. Jung, J. E. S. Venart and A. C. M. Sousa	2627	Effects of enhanced surfaces and surface orientation on nucleate and film boiling heat transfer in R-11
M.-H. Chun, H.-O. Choi, H.-G. Jun and Y.-S. Kim	2641	Phase-change front prediction by measuring the wall temperature on which solidification occurs

K. N. MEHTA and K. NANDAKUMAR 2651 Natural convection with combined heat and mass transfer buoyancy effects in non-homogeneous porous medium

D. L. R. OLIVER and J. E. SUNDERLAND 2657 A phase change problem with temperature-dependent thermal conductivity and specific heat

E. E. MICHAELIDES and A. LASEK 2663 Fluid–solids flow with thermal and hydrodynamic non-equilibrium

M. MAHFOUD, F. ABDELLAZIZ, M. LEBOUCHE, M. ROBERT et G. PIEROTTI 2671 Evolution du coefficient d'échange et des pertes de charge dans un faisceau de tubes, en fonction de l'angle d'attaque

Technical Notes

W. ODENDAAL and J. J. CARBERRY 2683 On ceramic particle–wall heat transfer in fixed beds

Y. JOSHI 2686 Wall plume at extreme Prandtl numbers

C. PRAKASH, M. SAMONDS and A. K. SINGHAL 2690 A fixed grid numerical methodology for phase change problems involving a moving heat source

Book Review

C. J. HOOGENDOORN 2695 Cryogenic Engineering, edited by B. A. HANDS

Announcements

2697 Second International Symposium on Two-phase Annular and Dispersed Flows, University of Oxford, U.K., 6–8 September 1988

2697 The First International Symposium on Symbolic Computation in Heat Transfer and Fluid Mechanics, ASME Winter Annual Meeting, Chicago, Illinois, U.S.A., 27 November–2 December 1988

i Volume Contents and Author Index for Volume 30, 1987